

vasoconstricting drug is infused selectively into the artery supplying the bleeding point. Repeat angiograms in addition to clinical findings may be used to determine whether the bleeding has ceased. Pitressin has been infused into the superior mesenteric artery for as long as two weeks in the control of variceal hemorrhage.

The results have so far been extremely encouraging and it is hoped that many patients may be spared emergency operation.

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Radionuclide Detection of Left-to-Right Cardiac Shunts

Large numbers of children, and occasionally adults, present a diagnostic problem of functional murmur versus congenital heart disease. Often, cardiac catheterization is necessary to make a correct diagnosis. Recently a simple radioisotopic technique has been perfected which enables detection of left-to-right shunts.

The procedure involves an intravenous injection of technetium-99m pertechnetate while imaging with an Anger scintillation camera over the heart and lungs and simultaneously recording the study on magnetic tape. A radionuclide cardiac angiogram is obtained, from which a pulmonary vascular dilution curve of the appearance and disappearance of isotope in the lung can be extracted. The pulmonary vascular dilution curve is analyzed in a specific manner which clearly differentiates the normal curve from one which reflects left-to-right shunting of blood through the lungs. Correlation with cardiac catheterization data has shown this test to be very sensitive to the presence of even very small left-to-right shunts.

This test is being used as a screening procedure for children with heart murmurs of unde-

termined significance. It appears to be a safe, highly reliable and valuable clinical tool in the evaluation of the pediatric cardiovascular patient.

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Radionuclide Studies as a Guide to Status of the Renal Transplant

There are two basic radioisotopic imaging studies that can be performed to follow the function of the transplanted kidney. They are the radionuclide renal angiogram and the radiohippuran renogram. These tests are also widely used in evaluation of renal function and renal artery stenosis in the general population.

The radionuclide angiogram is performed by intravenous injection of a bolus of technetium-99m pertechnetate and imaging with the scintillation camera over the transplanted kidney. Normally the distal abdominal aorta, the iliac vessels and prompt accumulation of the tracer material in the transplanted kidney are observed, indicating patency of the vascular supply to the transplanted kidney.

The renogram is performed by imaging with the scintillation camera, or a probe placed over the transplanted kidney to record the appearance and excretion of I_{131} labeled hippuran which is injected intravenously. The hippuran is excreted by the renal tubules and, providing there is patent vascular supply to the kidney and no obstruction of urine flow, the appearance and disappearance of tracer in the kidney reflect renal tubular function.

Transplant rejection and acute tubular necrosis both give abnormal results and are often indistinguishable by the hippuran renogram alone. However, the radionuclide angiogram usually continues to indicate adequate renal perfusion in the case of acute tubular necrosis but de-